Tamara Preiss
Vice President
Federal Regulatory Affairs

1300 I Street, NW, Suite 400 West
Washington, DC 20005

Phone 202 515-2540
Fax 202 336-7922
tamara.preiss@verizon.com

REDACTED – FOR PUBLIC INSPECTION

May 31, 2012

VIA ECFS AND HAND DELIVERY

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: ***Application of Cellco Partnership d/b/a Verizon Wireless and SpectrumCo LLC for Consent to Assign Licenses; Application of Cellco Partnership d/b/a Verizon Wireless and Cox TMI Wireless, LLC for Consent to Assign Licenses, WT Docket No. 12-4, Ex Parte***

Dear Ms. Dortch:

Cellco Partnership d/b/a Verizon Wireless herewith submits the attached *ex parte* letter. The letter contains Highly Confidential Information subject to the Second Protective Order (DA 12-51) in the above-referenced proceeding.

Pursuant to the terms of the Second Protective Order, two copies of the Redacted version of the attached letter are being filed with the Office of the Secretary. The Redacted version of the letter is also being filed electronically through the Commission's Electronic Comment Filing System. In addition, one copy of the Highly Confidential version of the letter is being delivered to the Office of the Secretary and two copies are being delivered to Sandra Danner of the Wireless Telecommunications Bureau's Broadband Division.

Should any questions arise concerning this filing, please do not hesitate to contact the undersigned.

Sincerely,

Attachments

cc: Tom Peters
Joel Rabinovitz
Susan Singer
Ziad Sleem
Thuy Tran
Jim Bird
Sandra Danner
Joel Taubenblatt
Best Copy and Printing

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Dear Ms. Dortch:

In prior meetings with Commission staff, representatives of Verizon Wireless have discussed the company's ability to refarm PCS spectrum over the next several years, and the company is providing this written *ex parte* to address questions that arose in those meetings.

Verizon Wireless has previously explained that it fully intends to refarm PCS spectrum for LTE when that spectrum is available. But PCS refarming alone cannot offset the increasing capacity constraints on the company's LTE network, and thus is not a substitute for additional AWS spectrum. The company's traffic projections through 2015 demonstrate the need for additional AWS spectrum to provide the 4G LTE data rates customers expect and Verizon Wireless intends to provide. Without the additional AWS spectrum that is the subject of this transaction, significant capacity constraints will occur on the LTE network. As Verizon Wireless has demonstrated, there is an extraordinary growth in customers' demand for LTE that far outstrips the capacity that could be provided by refarming PCS spectrum. Therefore, PCS refarming will be a supplement to, rather than an alternative for, additional AWS spectrum.

Verizon Wireless previously provided maps depicting the effect of PCS refarming for two markets, **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** To illustrate further that PCS refarming will not alleviate the projected

spectrum capacity constraints, Verizon Wireless is providing maps for nine additional markets identified by FCC staff, **[BEGIN HIGHLY CONFIDENTIAL]**

[END HIGHLY CONFIDENTIAL] The company previously provided maps for these markets that showed network capacity would not meet projected LTE traffic demand by year-end 2015. The maps enclosed with this letter assume that PCS is refarmed. They underscore that Verizon Wireless requires an additional 10x10 MHz of AWS spectrum to meet the needs of its customers, even with PCS refarming.

All the enclosed maps, like prior similar maps provided to the Commission, are derived from the Verizon Planning Instrument ("VPI"), a tool used in the regular course of business to track usage on the network and to project the spectrum needs of the company. These maps are based on the same traffic projections used for previous maps submitted to the Commission. Verizon Wireless emphasizes that if these maps used the company's most recent traffic projections for the LTE network, the maps would show even greater constraints on the LTE network over the next three years than the constraints depicted here.

The first set of maps (Map A for each market) shows significant spectrum constraints in all nine markets by year-end 2014. The next set of maps (Map B) depicts capacity constraints for these same markets at year-end 2015, even accounting for PCS refarming in 5x5 MHz channels. The maps confirm that PCS refarming alone is not adequate to prevent substantial service degradation, and that the company needs the additional spectrum that is the subject of this transaction. These maps demonstrate again that grant of the proposed AWS license assignments will serve the public interest.

With respect to timing, PCS refarming cannot begin before **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** because all three necessary steps for refarming must be in place: (1) availability of, at a minimum, a 5x5 block of PCS spectrum across an entire market; (2) penetration of PCS devices into Verizon Wireless' customer base; (3) and readiness of network infrastructure.

Availability of Spectrum. The amount of PCS spectrum that can be refarmed, and when, will vary by market, primarily due to customers' ongoing usage of EVDO, which is projected to continue to grow until **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]**. In some markets where Verizon Wireless has very little PCS spectrum, refarming will be not be an option until after **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]**, given continued use of those PCS licenses for EVDO; in other markets, such as those shown in the maps discussed herein, PCS spectrum is projected to be available in **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]**.

Moreover, the amount of PCS spectrum available for refarming is limited because, as Verizon Wireless has explained,[1] the company requires, at a minimum, a 5x5 PCS spectrum block to meet its service objectives, and the spectrum must be available across an entire market. LTE and CDMA technologies cannot share the same spectrum block in proximity to one another without significant service degradation. Accordingly, PCS spectrum cannot be used for LTE until all adjacent cell sites using the same 5x5 block have been cleared of CDMA operations. Guard bands (by frequency) and guard zones (by geography) are needed to mitigate inter-technology interference. While some cell sites may have unused PCS spectrum before other cell sites in the same market, it is the date the latest cell ceases to need the PCS spectrum that the PCS spectrum can be refarmed for LTE in that market. This is the case in many markets, where the greatest use is in the urban core, while cell sites on the outskirts of a market may already have unused PCS spectrum. The cell sites in the urban core must be cleared of EVDO operations before a 5x5 block can be refarmed to use PCS spectrum for LTE in that market. Moreover, the timing for refarming is also dependent on two other variables, device penetration and network infrastructure installation.

Device Development and Penetration. The first PCS devices will be available for Verizon Wireless' LTE network in **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]**. Although PCS-capable LTE devices are available today, there are no devices that combine 700 MHz, AWS, and PCS LTE capability in the same devices. Without tri-mode devices, Verizon Wireless cannot use refarmed PCS for LTE. An additional complication is that these tri-mode devices must also continue to provide CDMA capability on PCS and 850 MHz. This makes the use of PCS spectrum for LTE more complex than previously experienced with 700 MHz and AWS (bands that did not have any CDMA use at time of commercial launch). The company expects that by **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]** all new Verizon Wireless devices will support LTE on 700 MHz, AWS, and PCS frequencies, and that device penetration will have reached a level that supports PCS refarming **[BEGIN HIGHLY CONFIDENTIAL]** **[END HIGHLY CONFIDENTIAL]**. Nonetheless, device development, certification, testing, and availability timelines could affect delivery of sufficient numbers of LTE-capable PCS devices.

Network Infrastructure. The third requirement to refarm PCS is network infrastructure, which must be developed, installed on towers, and tested prior to commercial launch. As discussed above with respect to PCS handset development, PCS network equipment development is more complex because of the dual use of PCS spectrum for EVDO and LTE. The solution is called "hybrid combining," which permits one antenna to support two different

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[1] *See* Letter from Tamara Preiss, Verizon, to Marlene H. Dortch, Secretary, FCC, WT Docket No. 12-4, at 4 (May 17, 2012).

air interfaces – here CDMA and LTE. This solution requires not only installation for the LTE network but also extensive operational support for the EVDO network to install the solution and re-optimize the latter network. In addition, vendors must develop load balancing solutions to distribute traffic load across all three frequency bands (700 MHz, AWS, and PCS). This even distribution of traffic will ensure a consistent user experience regardless of the band, something Verizon Wireless believes is crucial to providing a high quality LTE experience.

* * *

This letter is being filed pursuant to Section 1.1206 of the Commission's Rules. Should you have any questions, please contact the undersigned.

Sincerely,

cc: Tom Peters (redacted)
Joel Rabinovitz (redacted)
Susan Singer (redacted)
Ziad Sleem (redacted)
Thuy Tran (redacted)

LTE Traffic Projections for 2014 / 2015

May 31, 2012

Projection Methodology

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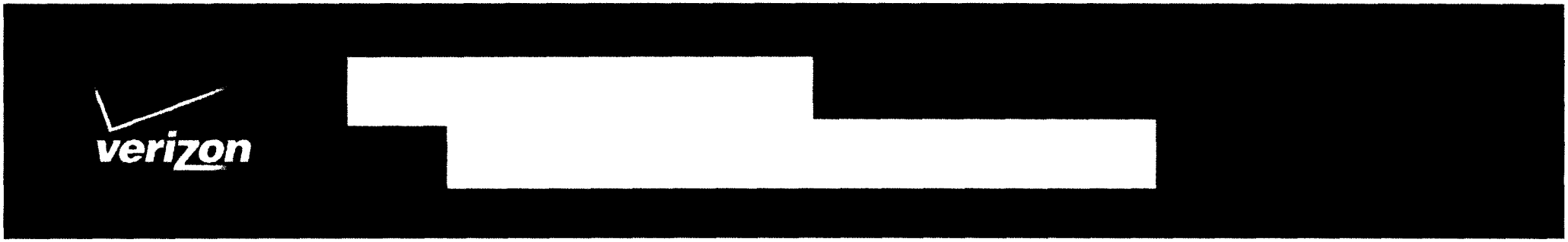

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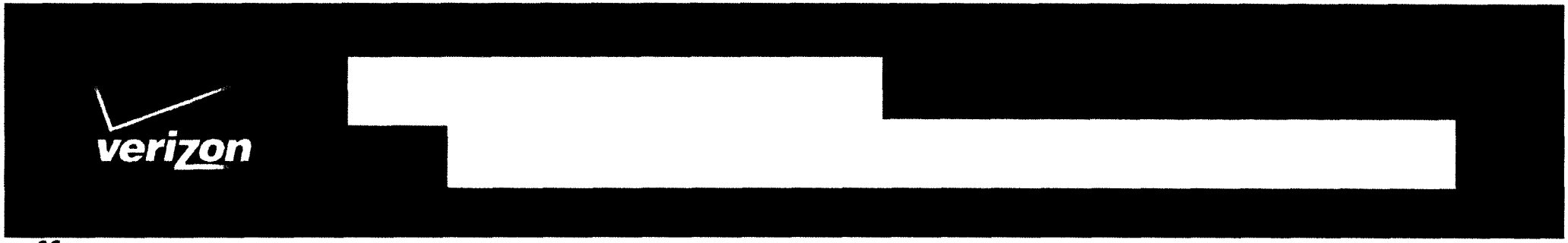

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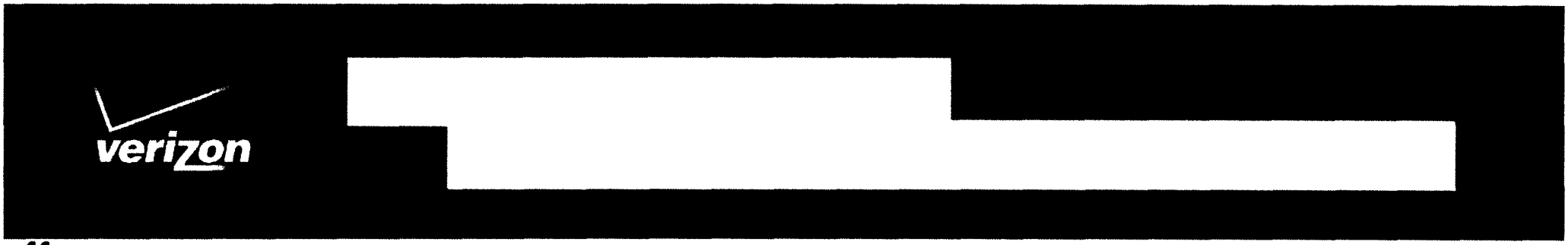

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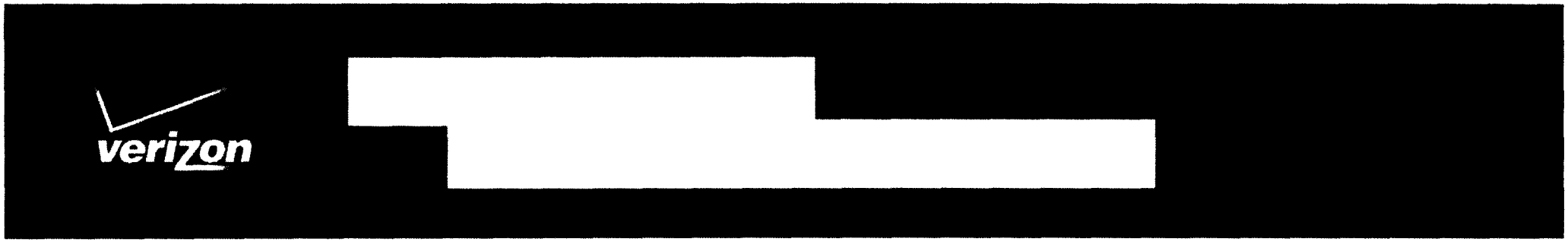

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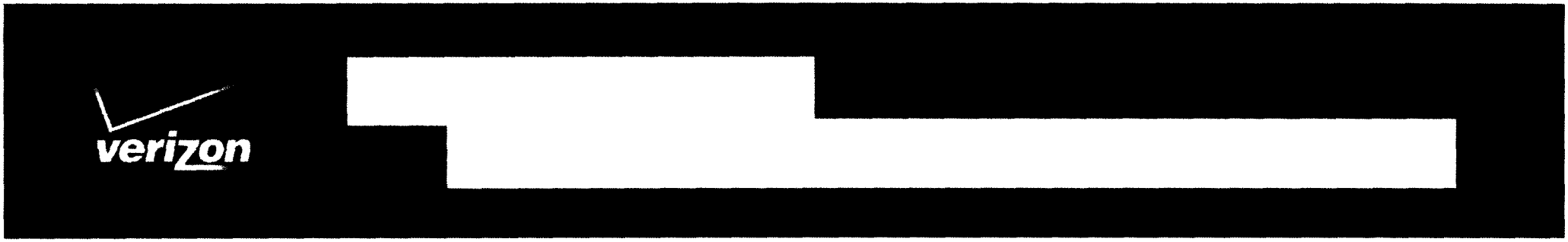

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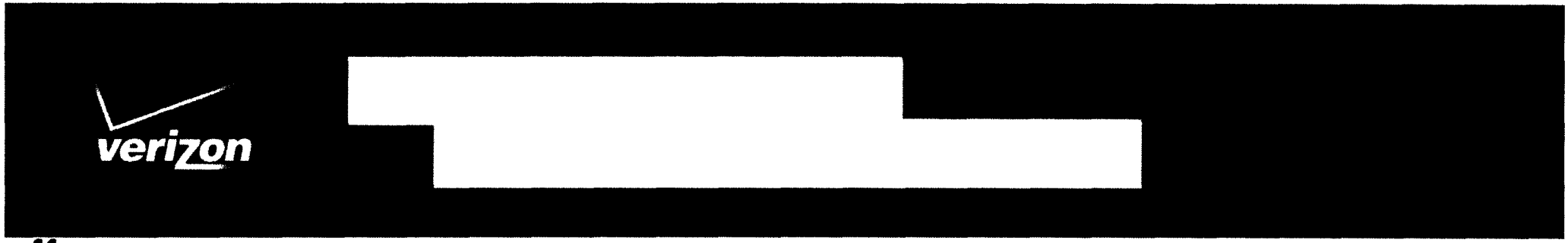

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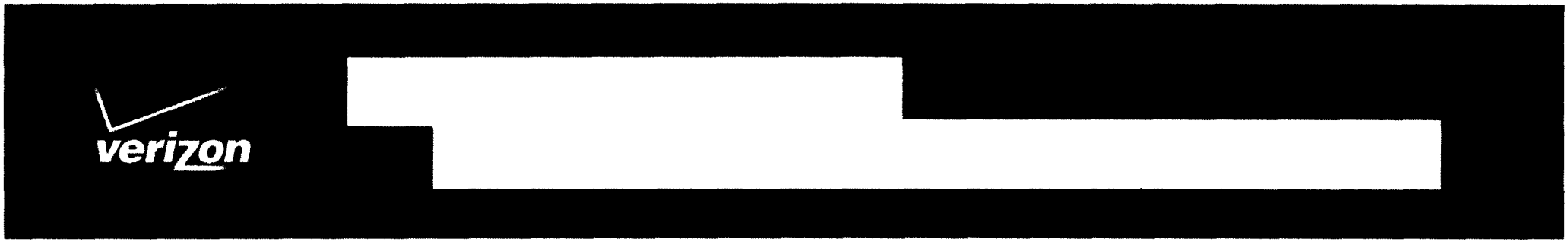

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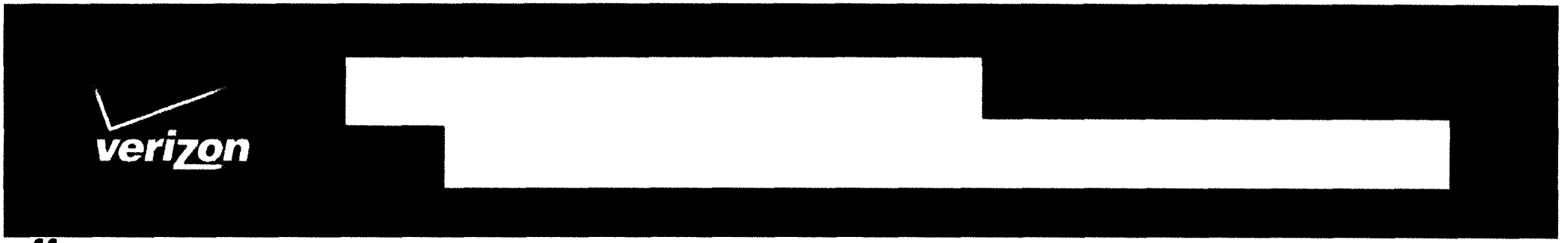

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verizon

End of Maps

